## WHAT IS CLAIMED IS:

1. An insulating ceramic compact comprising a fired mixture of MgAl<sub>2</sub>O<sub>4</sub>-based ceramic and borosilicate glass,

wherein the borosilicate glass comprises an  $MgAl_2O_4$  crystal phase and at least one of an  $Mg_3B_2O_6$  crystal phase and an  $Mg_2B_2O_5$  crystal phase.

- 2. An insulating ceramic compact according to Claim 1, wherein the borosilicate glass further comprises an Mg<sub>2</sub>SiO<sub>4</sub> crystal phase.
- 3. An insulating ceramic compact according to Claim 2, wherein the borosilicate glass comprises about 8 to 60 wt% of boron oxide calculated as  $B_2O_3$ , about 10 to 50 wt% of silicon oxide calculated as  $SiO_2$  and about 10 to 55 wt% of magnesium oxide calculated as MgO.
- 4. An insulating ceramic compact according to Claim 3, wherein the borosilicate glass comprises about 20 to 40 wt% of boron oxide calculated as  $B_2O_3$ , about 13 to 38 wt% of silicon oxide calculated as  $SiO_2$  and about 35 to 53 wt% of magnesium oxide calculated as MgO.
- 5. An insulating ceramic compact according to Claim 4, wherein the borosilicate glass comprises about 20 wt% or less of alkali metal oxide, about 20 wt% or less of aluminum oxide, about 30 wt% or less of zinc oxide, and about 10 wt% or less of copper oxide.

- 6. An insulating ceramic compact according to Claim 2, wherein the ratio of the MgAl<sub>2</sub>O<sub>4</sub>-based ceramic to the borosilicate glass is in the range of from about 20: 80 to 80: 20 on a weight basis.
- 7. An insulating ceramic compact according to Claim 2, wherein the borosilicate glass contains about 5 to 80 wt% of the MgAl<sub>2</sub>O<sub>4</sub> and about 5 to 70 wt% of the at least one of Mg<sub>3</sub>B<sub>2</sub>O<sub>6</sub> and Mg<sub>2</sub>B<sub>2</sub>O<sub>5</sub>, based on the total amount of the Mg<sub>2</sub>SiO<sub>4</sub>, Mg<sub>3</sub>B<sub>2</sub>O<sub>6</sub> and Mg<sub>2</sub>B<sub>2</sub>O<sub>5</sub> crystal phases.
- 8. An insulating ceramic compact according to Claim 7, wherein the ratio of the MgAl<sub>2</sub>O<sub>4</sub>-based ceramic to the borosilicate glass is in the range of from about 20 : 80 to 80 : 20 on a weight basis, the borosilicate glass comprises about 20 to 40 wt% of boron oxide calculated as B<sub>2</sub>O<sub>3</sub>, about 13 to 38 wt% of silicon oxide calculated as SiO<sub>2</sub> and about 35 to 53 wt% of magnesium oxide calculated as MgO, and wherein the borosilicate glass comprises about 20 wt% or less of alkali metal oxide, about 20 wt% or less of aluminum oxide, about 30 wt% or less of zinc oxide, and about 10 wt% or less of copper oxide.
- 9. An insulating ceramic compact according to Claim 1, wherein the borosilicate glass comprises about 8 to 60 wt% of boron oxide calculated as  $B_2O_3$ , about 10 to 50 wt% of silicon oxide calculated as  $SiO_2$  and about 10 to 55 wt% of magnesium oxide calculated as MgO.
- 10. An insulating ceramic compact according to Claim 9, wherein the borosilicate glass comprises about 20 to 40 wt% of boron oxide calculated as  $B_2O_3$ , about 13 to 38 wt% of silicon oxide calculated as  $SiO_2$  and about 35 to 53 wt% of magnesium oxide calculated as MgO.

5

- 11. An insulating ceramic compact according to Claim 10, wherein the borosilicate glass comprises about 20 wt% or less of alkali metal oxide, about 20 wt% or less of aluminum oxide, about 30 wt% or less of zinc oxide, and about 10 wt% or less of copper oxide.
- 12. An insulating ceramic compact according to Claim 1, wherein the ratio of the MgAl<sub>2</sub>O<sub>4</sub>-based ceramic to the borosilicate glass is in the range of from about 20: 80 to 80: 20 on a weight basis.
- 13. An insulating ceramic compact according to Claim 1, wherein the borosilicate glass contains about 5 to 80 wt% of the  $MgAl_2O_4$  and about 5 to 70 wt% of the at least one of  $Mg_3B_2O_6$  and  $Mg_2B_2O_5$ , based on the total amount of the  $Mg_2SiO_4$   $Mg_3B_2O_6$  and  $Mg_2B_2O_5$  crystal phases.
- 14. An insulating ceramic compact according to Claim 13, wherein the ratio of the MgAl<sub>2</sub>O<sub>4</sub>-based ceramic to the borosilicate glass is in the range of from about 20 : 80 to 80 : 20 on a weight basis, the borosilicate glass comprises about 20 to 40 wt% of boron oxide calculated as B<sub>2</sub>O<sub>3</sub>, about 13 to 38 wt% of silicon oxide calculated as SiO<sub>2</sub> and about 35 to 53 wt% of magnesium oxide calculated as MgO, and wherein the borosilicate glass comprises about 20 wt% or less of alkali metal oxide, about 20 wt% or less of aluminum oxide, about 30 wt% or less of zinc oxide, and about 10 wt% or less of copper oxide.
- 15. A ceramic multilayer substrate comprising:

  a plurality of insulating ceramic layers comprising an insulating ceramic compact according to Claim 1; and

5

a plurality of internal electrodes on the plurality of insulating ceramic layers.

- 16. A ceramic multilayer substrate according to Claim 15, having on at least one surface of each of the insulating ceramic layers, a second ceramic layer which has a dielectric constant higher than that of the insulating ceramic layer on which it is disposed.
- 17. A ceramic multilayer substrate according to Claim 15, wherein a pair of the internal electrodes and at least a part of a insulating ceramic layer form a laminated capacitor.
- 18. A ceramic multilayer substrate according to Claim 17, wherein a plurality of internal electrodes form a coil conductor, whereby a laminated inductor has been formed.
- 19. A ceramic electronic device comprising:

  a ceramic multilayer substrate according to Claim 15; and

  at least one electronic element mounted on the ceramic multilayer substrate so as to form a circuit together with the plurality of internal electrodes.
- 20. A ceramic electronic device according to Claim 19, further comprising:
- a plurality of external electrodes on the bottom surface of the ceramic multilayer substrate; and

5

wherein the substrate contains throughholes having conductors therein, the conductors electrically connecting an external electrode to an internal electrode or to the electronic element.